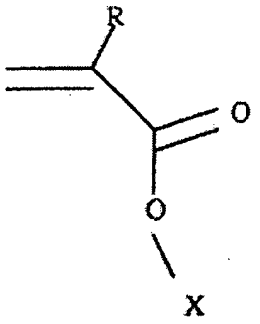
CLAIMS:

1. A process for depositing by electro-grafting a strong adherent polymer coating onto an electrically conductive surface comprising the step of electrochemically grafting an active monomer at said surface for forming a primer coating P onto said surface, said monomer having as general formula of:



wherein R represents hydrogen or methyl
and said monomer comprises an X group
which is part of a preformed polymer or
is as an intermediate agent for polyaddition reaction or
is an anchoring group for attachment of a molecule having at least one complementary reactive group.

2. The process according to claim 1 wherein X is an intermediate agent of polyaddition.

3. The process according to claim 2 wherein the intermediate agent is an initiator for radical polymerization via nitroxyde radical(NMP) reacting with a second monomer for forming a polymer top coating TC.

4. The process according to claim 3 wherein the initiator is an alkoxyamine for the initiation of styrene polymerization.

5. The process according to claim 4 wherein the monomer is 1-acryloxy-2phenyl-2(2', 2', 6',6'- tetramethyl-l'piperidinyloxy)ethane.

6. The process according to claim 2 wherein the intermediate agent is an initiator for radical polymerization via atom transfer polymerisation(ATRP) reacting with a second monomer for forming a polymer top coating TC.

7. The process according to claim 6 wherein the monomer is (2-chloroproprionate of ethyl acrylate for forming poly(2-chloroproprionate) ethyl acrylate as primer coating P.

8. The process according to claim 6 further comprising a metallic complex to catalyse the atom transfer polymerization for forming a polymer top coating TC.

9. The process according to claim 8 wherein the polymer top coating is polyester.

10. The process according to claim 2 wherein the intermediate agent is an initiator or a transfer agent for reversible-addition-fragmentation (RAFT) for forming a polymer top coating TC.

11. The process according to claim 1 wherein the intermediate agent is an initiator for ring opening polymerisation(ROP) reacting with a second monomer for forming a polymer top coating TC.

12. The process according to claim 11 wherein X is an alkoxide, preferably, an aluminum alkoxide.

13. The process according to claim 12 wherein the monomer is ethyl acrylate.

14. The process according to claim 13 wherein the second monomer is ε-caprolactone for forming poly(ε-caprolactone) as polymer top coating.

15. The process according to claim 12 wherein the second monomer is D, L-lactide for forming poly(D,L-lactide as polymer top coating.

16. The process according to claim 1 wherein X is part of a preformed polymer.

17. The process according to claim 16 wherein the preformed polymer is biocompatible and/or biodegradable.

18. The process according to claim 17 wherein the preformed polymer is (homopoly(4-(acryloyloxy)-ε-caprolactone)(polyACL).

19. The process according to claim 14 wherein the preformed polymer is polyethyleneoxide diacrylate.

20. The process according to claim 1 wherein the X is an anchoring group for attachment of a molecule or a macromolecule having at least one complementary reactive group.

21. The process according to claim 20 for the attachement of a macromolecule forming a polymer top coating.

22. The process according to claim 20 wherein the complementary reactive group is an amino group.

23. The process according to claim 20 wherein X is N-acryloyloxy succinimide.

24. The process according to claim 23 wherein the macromolecule is polystyrene containing amino groups.

25. The process according to claim 24 wherein the top coating is poly(meta (isopropyl-2-amino)styrene-co-styrene).

26. The polymer coating on an electrically conductive surface obtained by the process according to claim 1.

27. The polymer coating according to claim 26 having an adhesion strength superior to 3700 N/m.

28. The polymer coating according to claim 26 having a thickness superior to one micron.

29. Use of the polymer coating obtained by the process according to claim 1 for a metallic prosthese.

30. The use according to claim 29 for a stent.

31. The use of the polymer coating obtained by the process according to claim 1 as barrier coatings.

32. The use of the polymer coating obtained by the process according to claim 1 as insulating layers.

33. The use of the polymer coating obtained by the process according to claim 1 as anti-scratching.